

WHAT IS CLAIMED AS NEW AND IS INTENDED TO BE SECURED BY LETTERS
PATENT IS:

1. A method of improving settling times of catalyst in the epoxidation of a cyclic, at least monounsaturated alkene, comprising:

5 epoxidizing a cyclic, at least monounsaturated alkene having from 8 to 20 carbon atoms in the ring in a reaction medium containing an oxidant and a catalyst system comprising at least one metal of Groups 4, 5 and 6 of the Periodic Table of the Elements, phosphoric acid and a phase transfer catalyst and a cyclic alkane having from 8 to 20 carbon atoms in the ring, which corresponds to the alkene reactant, as settling accelerator in the
10 epoxidation reaction.

2. The method of claim 1, wherein the amount of cyclic alkane in the reaction medium is at least 1% by weight.

3. The method of claim 2, wherein the amount of cyclic alkane in the reaction medium is at least 2.5% by weight.

15 4. The method of claim 1, wherein the epoxidation reaction is conducted continuously.

5. The method of claim 1, wherein the oxidant is hydrogen peroxide.

6. The method of claim 1, wherein the reaction medium comprises at least two liquid phases.

20 7. The method of claim 1, wherein the pH of the reaction medium is maintained at a value in the range from 2 to 6.

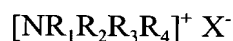
8. The method of claim 7, wherein the pH of the reaction medium is maintained at a value in the range from 2.5 to 4.

9. The method of claim 1, wherein the cyclic alkane is cyclododecane and the cyclic alkene is cyclododecene.

10. The process as claimed in claim 1, wherein the reaction mixture comprises at least one phase transfer catalyst and phosphoric acid.

5 11. The process as claimed in claim 10, wherein the phase transfer catalyst comprises at least one tertiary amine and/or a quaternary ammonium salt.

12. The process as claimed in claim 11, wherein the quaternary ammonium salt has the formula:



10 wherein R_1, R_2, R_3 and R_4 each, independently of one another, is a linear or branched, optionally substituted, alkyl chain having from 1 to 20 carbon atoms or an optionally substituted aryl group having from 6 to 10 atoms and X^- is a counterion which is chloride, bromide, fluoride, iodide, hydrogensulfate, acetate, propionate or formate.

13. The process as claimed in claim 13, wherein the catalyst is molybdenum, tungsten, chromium, vanadium or titanium metal, $Mo(CO)_6$, $W(CO)_6$, MoO_2 , Mo_2O_5 , Mo_2O_3 , MoO_3 , WO_2 , W_2O_5 , WO_6 , CrO_2 , Cr_2O_3 , CrO_3 , VO_2 , V_2O_5 , ZrO_2 , TiO , TiO_2 , Ti_2O_3 , NbO_2 , Nb_2O_3 , Nb_2O_5 , MoS_2 , MoS_3 , MoS_4 , Mo_2S_3 , Mo_2S_5 , an oxychloride of molybdenum, tungsten, chromium, vanadium, zirconium, titanium; a fluoride, chloride, bromide, iodide, nitrate, sulfate, phosphate, pyrophosphates polyphosphate, borate, carbonate, formate, octanoate, dodecanoate, naphthenate, stearate, oxalate, succinate, glutarate, adipate, benzoate, phthalate or a benzenesulfonate of molybdenum, tungsten, titanium, chromium, zirconium or vanadium; an acetylacetonate or phthalocyanine complex of molybdenum, tungsten, chromium, vanadium or titanium; molybdic, tungstic, vanadic or chromic acid;

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phosphomolybdic, phosphotungstic, arsenomolybdic or arsenotungstic acid or the alkali metal or alkaline earth metal salts of these acids.

14. The method of claim 1, wherein the cyclic alkene reactant is cyclooctene, cyclooctadiene, cyclodecene, cyclododecene, cyclododecadiene, cyclododecatriene or dicyclopentadiene.

15. The method of claim 1, wherein the temperature of the reaction ranges from 50 to 120° C.

16. The method of claim 15, wherein the temperature of the reaction ranges from 70 to 100° C.

17. The method of claim 1, wherein the epoxidation reaction is conducted in a cascade of 2 to 8 reactors.